

## OPERATING THE ECAM

**Purpose** This Meteorology and Air Quality Group (MAQ) procedure describes the operation of the Environmental Continuous Air Monitor (ECAM).

**Scope** This procedure applies to the operation, performance checking, and calibration of the ECAM.

**In this procedure** This procedure addresses the following major topics:

Topic	See Page
General Information About This Procedure	2
Who Requires Training to This Procedure?	2
ECAM Operation	4
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**Hazard Control Plan** The hazard evaluation associated with this work is documented in Attachment 1: Initial risk = **low**. Residual risk = **minimal**. Work permits required: none. First authorization review date is one year from group leader signature below; subsequent authorizations are on file in group office.

**Signatures**

Prepared by:  Mike McNaughton, NEWNET Project Leader	Date:  <u>9/26/2002</u>
Approved by:  Terry Morgan, QA Officer	Date:  <u>9/26/02</u>
Work authorized by:  Jean Dewart, MAQ Acting Group Leader	Date:  <u>9/26/02</u>

10/23/02

### CONTROLLED DOCUMENT

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## General information about this procedure

**Attachments** This procedure has the following attachments:

Number	Attachment Title	No. of pages
1	Hazard Control Plan	2

**History of revision** This table lists the revision history and effective dates of this procedure.

Revision	Date	Description Of Changes
0	10/8/02	New document.

**Who requires training to this procedure?** The following personnel require training before implementing this procedure:

- Personnel assigned to operate ECAM

Annual retraining is required and will be by self-study (“reading”) training.

**Training method** The training method for this procedure is “**self-study**” (reading) and is documented in accordance with the procedure for training (MAQ-024).

**Prerequisites** In addition to training to this procedure, the following training is also required prior to performing this procedure:

- Radiological Worker (RW) training
- MAQ-HCP-Field Work

## General information, continued

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**Definitions  
specific to this  
procedure**

None.

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**References**

The following documents are referenced in this procedure:

- MAQ-024, “Personnel Training”
- HSR-1 procedure “Operating the Canberra ASM1000 Alpha CAM”, ESH-1-07-21
- “NETCAM and ECAM User’s Manual,” Aquila-Canberra, A-NC-UM-V3.0, 2002

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**Note**

Actions specified within this procedure, unless preceded with “should” or “may,” are to be considered mandatory guidance (i.e., “shall”).

## ECAM operation

<b>What is an ECAM?</b>	An environmental continuous air monitor, ECAM, is a Canberra ASM1000 Alpha CAM that has been modified for use in the outdoor environment and is designed to be quickly deployed. The basic ASM1000 Alpha CAM is described in the HSR-1 procedure “Operating the Canberra ASM1000 Alpha CAM”, ESH-1-07-21.3. The modifications that transformed the ASM100 into the ECAM were designed by John Rodgers, HSR-4 and implemented by Aquila Technologies Group, Inc., in Albuquerque. The ECAM is described in the Aquila-Canberra “NETCAM and ECAM User’s Manual.”
<b>What is an ECAM used for?</b>	The purpose of an ECAM is to measure alpha emitting particulate contamination in the air of the outdoor environment, to distinguish transuranic or uranium contamination from radon decay products, and to calculate the concentration of transuranics or uranium in the air.
<b>Deployment of ECAMs</b>	ECAMs are deployed as part of the NEWNET system at the direction of the NEWNET project leader. The NEWNET project is not a part of the LANL emergency response capability, and so personnel do not maintain the training necessary to perform response work during an emergency. However, if it is safe to do so, the NEWNET team will respond to a request or an identified need according to the constraints of time, budget, equipment availability, and the limitations of their training.
<b>Power source</b>	Ensure the power source is equipped with a GFCI and use a wet-rated extension cord.
<b>Operating procedures</b>	Set up and operate the ECAMs according to Sections 1 through 5 of the Canberra-Aquila User’s Manual (most recent version).
<b>Performance check</b>	Perform the Performance Check described in Section 4.4 of the Canberra-Aquila User’s Manual whenever the system is re-deployed or is powered back on for any reason.
<b>Calibration</b>	Calibrate the CAM according to Section 4.5 of the Canberra-Aquila User’s Manual on an annual basis.

## ECAM operation, continued

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**Interpretation** The interpretation of ECAM data will be done by personnel with appropriate qualifications; for example, certification as a radiation control technician (RCT), certification via the National Registry of Radiation Protection Technicians (NRRPT), or a Certified Health Physicist (CHP).

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**Activity other than natural background** In the event that the ECAM detects activity other than radon decay products:

- wear gloves when changing filters
- store and dispose of the filter appropriately in consultation with an RCT
- wear gloves and use caution when opening and cleaning the trap
- after cleaning the ECAM, do a background run to check for contamination.

## Records resulting from this procedure

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### Records

The following records generated as a result of this procedure are to be completed within 1 month.

- Location and results are documented in the “Comment\_data” table of the NEWNET database.
- Calibrations are documented in the Web\_location\_info table, or another appropriate table if the NEWNET database is updated.

### HAZARD CONTROL PLAN

1. The work to be performed is described in this procedure. Procedure title:  
**“Operating the ECAM”**

2. Describe potential hazards associated with the work (use continuation page if needed).

Radioactive material on calibration source.

Possible radioactive material, other than natural background, on filter and trap.

Shock from 110-V power.

3. For each hazard, list the likelihood and severity, and the resulting initial risk level (before any work controls are applied, as determined according to LIR300-00-01, section 7.2)

Radioactive material: improbable/moderate = minimal

Shock from 110-V power: remote/catastrophic = low

Overall *initial* risk: ☐ Minimal ☒ Low ☐ Medium ☐ High

4. Applicable Laboratory, facility, or activity operational requirements directly related to the work:

☐ None ☒ List:

Work Permits required? ☒ No ☐ List:

LIR-402-706-01 “Personnel Dosimetry”

LIR-402-718-01 “Radiological Training”

LIR-402-600-01 “Electrical Safety”

### HAZARD CONTROL PLAN, continued

5. Describe how the hazards listed above will be mitigated (e.g., safety equipment, administrative controls, etc.):

Radioactive material: Radiological Worker training.

Electric shock: Electrical Safety training and use of GFCI.

6. Knowledge, skills, abilities, and training necessary to safely perform this work (check one or both):



Group-level orientation (per MAQ-032) and training to this procedure.



Other → See training prerequisites on procedure page 3. Any additional describe here:

7. Any wastes and/or residual materials? (check one) ☒ None ☐ List:

8. Considering the administrative and engineering controls to be used, the *residual* risk level (as determined according to LIR300-00-01, section 7.3.3) is (check one):



Minimal



Low



Medium (requires approval by Division Director)

9. Emergency actions to take in event of control failures or abnormal operation (check one):



None



List:

For all injuries, provide first aid and see that injured person is taken to Occupation Medicine (only if immediate medical attention is not required) or the hospital. For any exposed, energized electrical wires, contact JCNNM or the appropriate authority to turn off the power. Follow all site specific emergency plans for any radiation or explosives emergencies.

Signature of preparer of this HCP: This HCP was prepared by a knowledgeable individual and reviewed in accordance with requirements in LIR 300-00-01 and LIR 300-00-02.

Preparer(s) signature(s)

Name(s) (print)

/Position

Date

Signature by group leader on procedure title page signifies authorization to perform work for personnel properly trained to this procedure. This authorization will be renewed annually and documented in ESH-17 records.

Controlled copies are considered authorized. Work will be performed to controlled copies only. This plan and procedure will be revised according to MAQ-022 and distributed according to MAQ-030.